

REMARKS:

Claims 12-13, 15 and 19 are pending. Applicants wish to thank the Examiner for noting the requirements of 37 CFR 1.121 in regards to the requirement for listing all Claims. As shown above, all Claims have been listed in the instant Office Action.

Specification

Attached hereto is a substitute Specification. No new material is added.

Claim rejections under 35 USC § 112 ¶2

Claims 12-19 are rejected for allegedly being indefinite for failing to point out and distinctly claim the subject matter which the Applicants regard as the invention. The Examiner asserts that the term “the alteration in substrate specificity leads to a stereoselective enzymatic activity” and refers to a cited art reference stating that the term “stereoselective” adds no limitations to the Claim, is redundant and as such, is indefinite. Applicants respectfully disagree.

Applicants note that at the time of filing, there were numerous cited art references in the field at the time of filing that teaches non-stereospecific enzymatic activity. For example, the Examiner is directed to Winkler and Markovitz, Guanosine diphosphate-4-keto-D-rhamnose reductase, A non-stereoselective enzyme, *J Biol Chem.*246(19):5868-76, 1971 wherein the researchers assert “[t]his is the first description of a pyridine nucleotide oxidoreductase **which lacks precise stereoselectivity...**” (emphasis added). Thus, any enzymatic reaction, by definition, is not stereoselective in the manner asserted by the Examiner.

Further, the Examiner’s argument appears to be taken out of the context from the textbook of Solomons. Solomon’s teachings are about the situation for an enzyme in its natural environment. When in their natural environment, enzymes can often be stereoselective but not all enzymes are stereoselective in their natural environment. For example, desaturases, which introduce double bonds in fatty acids or elongases, which elongate fatty acids by two carbon atoms, do not have any stereoselectivity.

More importantly though, the instant invention is related to a modification of the substrate specificity of an enzyme for use as chemical catalyst outside the natural environment (See the instant examples). The aforementioned reactions are non-analogous and the skilled

artisan would have known at the time of filing that in such *in vitro* reaction solutions, the stereoselectivity of an enzyme is a major concern. The Examiner is directed to page 178 cf. of the attached Drauz and Waldmann, *Enzyme Catalysis in Organic Synthesis*, VCH Verlagsgesellschaft mbH, Weinheim 1995, wherein said textbook clearly shows that enzymatic reactions are often of low or no stereoselectivity (said reactions are identified with underlining and arrows). Further, a similar lack of or a low stereoselectivity can be seen in on page 131 cf. of the 2002 version of Drauz and Waldmann, *Enzyme Catalysis in Organic Synthesis*, Wiley-VCH Verlag GmbH, Weinheim (also attached hereto).

The Examiner has also stated that there is insufficient antecedent basis for some of the enzymes recited in the dependent Claims. Although a recent Federal Circuit case, *Energizer Holdings v. ITC*, (Fed. Cir. 2006), stated that the lack of antecedent basis alone does not render a claim indefinite under §112 ¶2, Applicants have cancelled Claims 14 and 16-18 to facilitate prosecution of the instant application.

Claim rejections under 35 USC § 103

Claims 12-18 are rejected for allegedly being unpatentable in light of Greener et al. in view of US 5,830,696 and Claim 19 is rejected in light of the aforementioned art in further view of van der Kaay.

The Examiner refers to a representative list of enzymes at columns 6-7 in US 5,830,696,. The recitation on the referenced pages is nothing more than a wish list of enzymes “which **may** be mutanegized” (emphasis added). Consequently, while the reference does state what the Examiner listed in the Office Action, the data in the article appears to merely suggest an invitation to explore and as such, is not obvious under USC 35 § 103 (a) (*See Ex parte Obukowicz*, 27 USPQ 2d 1063: 1992). Accordingly, Claims 12-18 are not obvious in light of the art put forth by the Examiner.

In regards to Claim 19, Applicants respectfully assert that 1) the Examiner has misread the 03 November 2005 reply; and 2) the combination of the cited art listed by the Examiner. First, Applicants reply of 03 November was referring to the instant invention as recited in the Claims. At no point did the Applicants assert that any method, other than that disclosed, would be “routine.” Moreover, the combination of the cited art would **not** provide one of ordinary skill in the art the expectation of success to practice the instant invention. van der Kaay teaches the

dephosphorylation of InsP_6 via an enzyme from *Paramecium*. According to said reference, “most InsP_6 -degrading enzymes are either not very specific or degrade InsP_6 only at one position.” (col. 1, p. 907). Further, said cited art fails to disclose or suggest any modification of any type of enzyme. The data contained in said reference are based on a fortuitous discovery by a separate researcher, i.e the scientist that found the enzyme in *Paramecium*. Thus one of ordinary skill in the art, practicing the method of van der Kaay, would not have been motivated with the expectation of success to modify the enzyme listed in order to practice the instant invention.

Accordingly, for at least the reasons expressed above, it is urged that the art references cited by the Examiner, either singly or in combination, fail to anticipate or suggest the present invention as defined by the Claims. Accordingly, a *prima facie* case of obviousness has not been established by the Examiner, and the rejection under 35 USC § 103 should be withdrawn. Favorable action is solicited.